MAgrSc INNOVATION SUPPORT PROGRAMME 2020-2022

Study Title: Smart Farming on rural farms demonstrating benefits to the wider agri-food community and co-creating new food products and services

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Study Background

The Ploutos Project (H2020)

- Develop a Sustainable Innovation Framework that follows a systemic approach to the agri-food sector

- 11 Sustainable innovation pilots across 13 countries

  - Behavioural Innovation

  - Sustainable Collaborative Business Model Innovation

  - Data-driven Technology Innovation

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Context

- Net–Feasa: digital development company in Dingle

- Developing smart sensors for use in agriculture (weather / soil / bulk tanks / slurry)

- Currently working with Teagasc, Kerry AgriBusiness & Dingle Hub to refine the technical usefulness of the tools

- Ploutus (H2020) opportunity to examine the social dimensions of how farmers as end users perceive the usefulness of these tools and the scope for collaborative innovation and adaptation
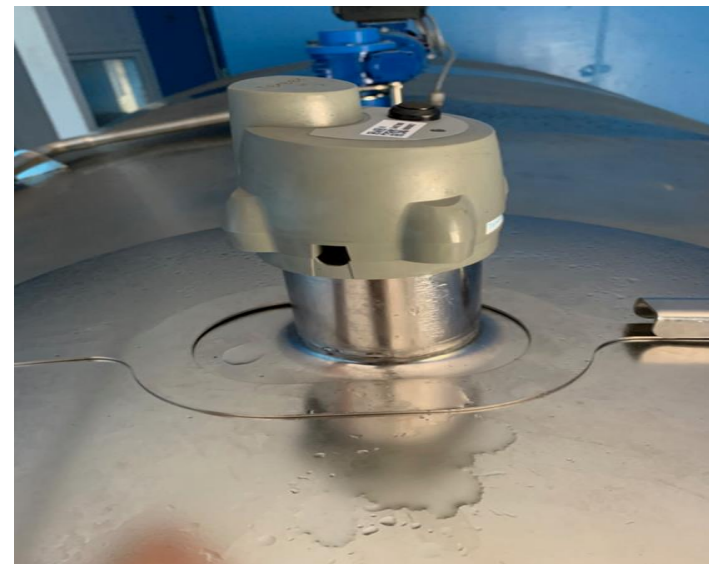
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Study Rationale

Digitalisation in agriculture and the development of smart farming technologies have the ability to transform farming practices. Yet literature suggests that farmers do not adopt the vast majority of such systems. This study will identify and map the farmers decision processes with a view to understanding the various factors that influence decision making when adopting a new technology

Study Aim

To work within the PLOUTOS H2020 project,
- To engage in participatory extension in the community to support multi-actor collaboration

- To embed information generated from use of on-farm sensors into diverse value chains, enhancing the sustainability of farms

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Research Questions

Evaluating the usefulness of technologies which aim to enhance the sustainability of Irish farms from the end users perspective

- What benefits (or costs) do farmers perceive from the technology (economic/social/environmental/cultural)?
- How do farmers use the data generated by the sensors in making decisions (mapping the decision processes)?
- What social and cultural factors impact on the use of the sensors by the individual users?
- What social and cultural factors impact on dissemination of these technologies among the social network of the user and what opportunities exist for greater social learning?
- How effective (or not) are the processes for engaging end users in collaborative adaptation and innovation?

What the Literature is Saying

- Digitalisation in agriculture and the development of smart farming technologies are transforming farming practices making farming processes more reliant on data (Wolfert et al. 2017)

- Smart farming technologies have the ability to contribute to agricultural sustainability through targeted precision of inputs based on site specific needs and context (Kernecker et al.,2020)

- Farmers do not adopt the vast majority of such systems (Ascough and Deer-Ascough, 1994; Cox, 1996; Parker, 1999; Ascough et al., 2002; Stephens and Middleton, 2002)

- While small farms by definition are limited by their physical footprint, they are often efficient in mobilising resources beyond those related to farm commercialisation through market exchange, such as social capital, cultural heritage and local knowledge (Knickel, 1994; van der Ploeg, 2013; Šūmane et al., 2017)

Teagasc

AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

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Study Methodology

A critical realist approach will be used acknowledging that causal mechanisms are complex and irreducible to a simple cause-effect relationship

- Qualitative
- Case study
- Exploratory
- Observational
- Developmental Evaluation

- Interviews
- Focus group
- Workshop
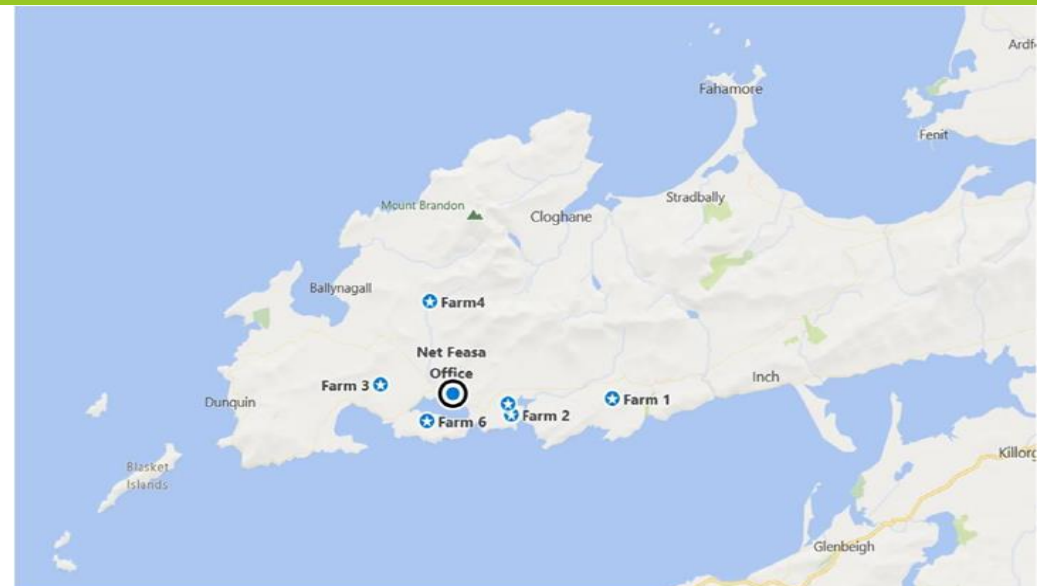- Ethnography
- Reflective journal

Study Population

Six ambassador farms on the Dingle peninsula

Social network to which they belong

Wider network

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Practical utility of this study to the advisory/education service

The findings of this study will better inform Advisors and/or education officers regarding the various factors that can have an influence over whether a farmer adopts and implements smart farming technologies or not, and therefore can assist in the planning and delivery of future innovations

Schedule of Activities

Month Task	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
Literature Review																			
Proposal																			
Introductory meeting																			
Reflective diary																			
Interviews																			
Virtual workshop																			
Focus group																			
Ethography																			